

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-65 – Cancelled.

66. (Previously Amended) A local communication system comprising:
a plurality of stations interconnected by data carrying segments so as to form a ring network,
each station comprising a network interface for transmitting data onto a respective segment of the ring network for receipt by the network interface of a subsequent station,
whereby the network interfaces of all stations are operable at data rates synchronized with a single master clock, and
wherein the network interfaces of at least two stations in the system are operable such that the data rate in a first segment of the ring is higher than that in a second segment of the ring, while remaining synchronized with said master clock,
wherein synchronization is maintained by the provision of a regular frame structure which has the same frame period in both segments of the network, but a larger quantity of data in each frame of the first segment, and
wherein each frame conveys control bits forming part of a control message frame transmitted over plural frames over all segments of the ring, successive control message

frames forming a control channel shared by all stations of the ring network and having a constant data rate for control information in all segments.

Claims 67-69 – cancelled.

70. (Previously Amended) A system as in claim 66, including means for synchronizing one or more digital audio data sources, for which source data is carried in the fixed rate portions of each frame, with the data rates of the interface.

71. (Previously Amended) A network interface for use in interfacing a station to a local communication system comprising a synchronous ring network, each station in use being connected between incoming and outgoing segments of the ring network, the interface comprising:

means for transmitting data onto the outgoing segment of the ring network for receipt by a subsequent station,

the interface being operable, at least in a mixed-speed mode, to transmit data on the outgoing segment at a data rate synchronized with but different to the rate of data received on the incoming segment,

wherein in said mixed speed mode, synchronization is maintained by the provision of a regular frame structure which has the same frame period in both segments of the network, but a larger quantity of data in each frame of one of said segments, and

wherein each frame conveys control bits forming part of a control message frame transmitted over plural frames over both incoming and outgoing segments of the ring, successive control message frames forming a control channel shared by all stations of the ring network and having a constant data rate for control information in all segments.

Claims 72-74 – cancelled.

75. (Previously Amended) An interface as in claim 71 including means for synchronizing one or more digital audio data sources, for which source data is carried in the fixed rate portions of each frame, with the data rates of the interface.

76. (Currently Amended) An apparatus for use as a station in a local communication system, the apparatus comprising at least one ~~fundamental~~functional unit and a network interface circuit as in claim 71.

77. (Previously Presented) An apparatus as in claim 76 wherein said functional unit comprises a source of destination of audio data.

78. (Previously Amended) A local communication method for use with a plurality of stations interconnected by data carrying segments so as to form a ring network, each station comprising a network interface for transmitting data onto a respective segment of the ring network for receipt by the network interface of a subsequent station, said method comprising:

operating the network interfaces of all stations at data rates synchronized with single master clock , and

operating the network interfaces of at least two stations in the system such that the data rate in a first segment of the ring is higher than that in a second segment of the ring, while remaining synchronized with said master clock,

wherein synchronization is maintained by the provision of a regular frame structure which has the same frame period in both segments of the network, but a larger quantity of data in each frame of the first segment, and

wherein each frame conveys control bits forming part of a control message frame transmitted over plural frames over all segments of the ring, successive control message frames forming a control channel shared by all stations of the ring network and having a constant data rate for control information in all segments.

Claims 79-81 – cancelled.

82. (Previously Amended) A method as in claim 78, including synchronizing one or more digital audio data sources, for which source data is carried in the fixed rate portions of each frame, with the data rates of the interface.

83. (Previously Amended) A network interface method for use in interfacing a station to a local communication system comprising a synchronous ring network, each

station in use being connected between incoming and outgoing segments of the ring network, the method comprising:

transmitting data onto the outgoing segment of the ring network for receipt by a subsequent station,

operating the interface, at least in a mixed-speed mode, to transmit data on the outgoing segment at a data rate synchronized with but different to the rate of data received on the incoming segment,

wherein in said mixed speed mode, synchronization is maintained by the provision of a regular frame structure which has the same frame period in both segments of the network, but a larger quantity of data in each frame of one of said segments, and

wherein in said mixed speed mode, each frame conveys control bits forming part of a control message frame transmitted over plural frames over all segments of the ring, successive control message frames forming a control channel shared by all stations of the ring network and having a constant data rate for control information in all segments.

Claims 84-86 – cancelled.

87. (Previously Amended) An interface method as in claim 83 including synchronizing one or more digital audio data sources, for which source data is carried in the fixed rate portions of each frame, with the data rates of the interface.

88. (Previously Presented) Method for use as a station in a local communication system, the method comprising use of at least one functional unit and a network interface method as in claim 83.

89 (Previously Presented) A method as in claim 88 wherein said functional unit comprises a source or destination of audio data.

90. (Previously Presented) A method for operating a ring data communications network to concurrently service interconnected devices requiring different payload rates, said method comprising:

transmitting successive frames occupying successive equal time periods;

transmitting the same number of control bits in each said frame to form a control channel shared by all stations of the ring network; and

transmitting different numbers of payload data bits in respectively corresponding different ones of said frames to form a plurality of ring link segments having different payload data rates to respectively corresponding different stations of the ring network.

91. (New) A local communication system comprising:

a plurality of stations interconnected by data carrying segments so as to form a ring network,

each station comprising a network interface for transmitting data onto a respective segment of the ring network for receipt by the network interface of a subsequent station,

whereby the network interfaces of all stations are operable at data rates synchronized with a single master clock, and

wherein the network interfaces of at least two stations in the system are operable such that the data rate in a first segment of the ring is higher than that in a second segment of the ring, while remaining synchronized with said master clock,

wherein synchronization is maintained by the provision of a regular frame structure which has the same frame period in both segments of the network, but a larger quantity of data in each frame of the first segment, and

wherein each frame conveys at least one bit forming part of a message frame transmitted over plural frames over all segments of the ring, successive message frames forming a messaging channel which is shared by all stations of the ring network and which has constant data rate in all segments.

92. (New) A system as in claim 91 including means for synchronizing one or more digital audio data sources, for which source data is carried in the fixed rate portions of each frame, with the data rates of the interface.

93. (New) A network interface for use in interfacing a station to a local communication system comprising a synchronous ring network, each station in use being connected between incoming and outgoing segments of the ring network, the interface comprising:

means for transmitting data onto the outgoing segment of the ring network for receipt by a subsequent station,

the interface being operable, at least in a mixed-speed mode, to transmit data on the outgoing segment at a data rate synchronized with but different to the rate of data received on the incoming segment,

wherein in said mixed speed mode, synchronization is maintained by the provision of a regular frame structure which has the same frame period in both segments of the network, but a larger quantity of data in each frame of one of said segments, and

wherein each frame conveys at least one bit forming part of a message frame transmitted over plural frames over both incoming and outgoing segments of the ring, successive message frames forming a messaging channel which is shared by all stations of the ring network and which has a constant data rate in all segments.

94. (New) An interface as in claim 93 including means for synchronizing one or more digital audio data sources, for which source data is carried in the fixed rate portions of each frame, with the data rates of the interface.

95. (New) An apparatus for use as a station in a local communication system, the apparatus comprising at least one functional unit and a network interface circuit as in claim 93.

95. (New) An apparatus as in claim 95 wherein said functional unit comprises a source or destination of audio data.

96. (New) A local communication method for use with a plurality of stations interconnected by data carrying segments so as to form a ring network, each station comprising a network interface for transmitting data onto a respective segment of the ring network for receipt by the network interface of a subsequent station, said method comprising:

operating the network interfaces of all stations at data rates synchronized with single master clock, and

operating the network interfaces of at least two stations in the system such that the data rate in a first segment of the ring is higher than that in a second segment of the ring, while remaining synchronized with said master clock,

wherein synchronization is maintained by the provision of a regular frame structure which has the same frame period in both segments of the network, but a larger quantity of data in each frame of the first segment, and

wherein each frame conveys at least one bit forming part of a message frame transmitted over plural frames over all segments of the ring, successive message frames forming a control channel shared by all stations of the ring network and having a constant data rate for control information in all segments.

97. (New) A method as in claim 96 including synchronizing one or more digital audio data sources, for which source data is carried in the fixed rate portions of each frame, with the data rates of the interface.

98. (New) A network interface method for use in interfacing a station to a local communication system comprising a synchronous ring network, each station in use being connected between incoming and outgoing segments of the ring network, the method comprising:

transmitting data onto the outgoing segment of the ring network for receipt by a subsequent station,

operating the interface, at least in a mixed-speed mode, to transmit data on the outgoing segment at a data rate synchronized with but different to the rate of data received on the incoming segment,

wherein in said mixed speed mode, synchronization is maintained by the provision of a regular frame structure which has the same frame period in both segments of the network, but a larger quantity of data in each frame of one of said segments, and

wherein in said mixed speed mode, each frame conveys at least one bit forming part of a message frame transmitted over plural frames over all segments of the ring, successive message frames forming a messaging channel which is shared by all stations of the ring network and has a constant data rate for control information in all segments.

99. (New) An interface method as in claim 98 including synchronizing one or more digital audio data sources, for which source data is carried in the fixed rate portions of each frame, with the data rates of the interface.

100. (New) Method for use as a station in a local communication system, the method comprising use of at least one functional unit and a network interface method as in claim 98.

101. (New) A method as in claim 100 wherein said functional unit comprises a source or destination of audio data.

102. (New) A method for operating a ring data communications network to concurrently service interconnected devices, the required capacity for data being substantially higher between certain of said devices than between others, said method comprising:

transmitting from device to device successive frames occupying successive equal time periods;

transmitting the same number of bits for control data in each said frame to form a control data channel shared by all stations of the ring network; and

transmitting different numbers of bits for other data in respectively corresponding different ones of said frames to form a plurality of ring link segments having different

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Appl. No. 09/373,980
March 17, 2004

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capacity for said other data to respectively corresponding different stations of the ring
network.
